

# MISSOURI MONTHLY VITAL STATISTICS

## *Provisional Statistics*

From The

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### **Focus...Preterm Births by Race and Age of Mother and Birth Order**

For 2001, 10.6 percent of Missouri resident live births were born preterm (less than 37 completed weeks of gestation) and these births accounted for 63.1 percent of Missouri's infant deaths. The etiology of preterm births is poorly understood. As with most poor pregnancy outcomes, the etiology of preterm birth is multi-factorial with genetic, environmental, social, medical and behavior factors playing a part. However some risk factors/markers have been identified (e.g. multi-fetal births, obstetrical intervention, incompetent cervix, previous preterm birth, uterine bleeding, eclampsia, hydramnios/oligohydramnios, violence, illegal drug use, chronic and pregnancy-induced hypertension, bacterial vaginosis, alcohol and tobacco use).

The present study looks at how the risk of a preterm birth varies by race and age of mother and birth order. The study population consists of all 1995-2000 Missouri resident singleton live births born in Missouri non-military hospitals for mother's race groups of Non-Hispanic Black (NH-Black) and Non-Hispanic White (NH-White). Only singletons were included because of the high preterm rate (56.3 percent) associated with multi-fetal births (e.g. twins). Other race/ethnic groups were excluded because of small numbers (for 1995-2000 Missouri residents recorded in Missouri non-military hospitals 2.4 percent of all live births are other races and 2.5 percent are of Hispanic origin which can be of any race). The linked patient abstract (mother's hospital record)/birth certificate

data set was used to acquire more complete reporting of medical and behavioral factors related to preterm births. These factors will be addressed in a future focus article, which will look at preterm births by mothers' age and race.

For the 1995-2000 study period the overall preterm rate for singletons was 8.8 percent with rates of 15.4 and 7.6 percent, respectively, noted for NH-Black and NH-White. NH-Black women had infants with higher preterm rates than NH-White women for all birth order and maternal age groups except for the cells (extreme birth order for teens) where the numbers of NH-White preterm births were very small and therefore unreliable.

Tables 1 and 2 show the number and percent of preterm births by mother's race, birth order and age. Overall, and for both race groups, higher rates were observed for infants of mothers born at the extremes of the fertility range. The lowest preterm rates were observed in the 25-34 age range for mothers in the NH-White group and the 20-29 age range for the mothers in the NH-Black group. Even though this is the case, the largest numbers of preterm births occur for women ages 20-24 followed by ages 25-29 because that is where the majority of births occur. Also, in regards to birth order, overall and for both race groups the lowest preterm rate was noted for the second born infant, with rates increasing with each succeeding birth order.

(continued on next page)

Table 1: Preterm Births by Mothers Race by Birth Order by Age of Mother:  
1995-2000 Missouri Resident Singleton Live Births Born in Missouri Non-Military Hospitals

Birth Order	Age of Mother							Total
	10 to 17	18 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 or over	Preterm
Both Race groups								
First Born	2,397	2,585	4,140	3,113	1,864	732	132	14,963
Second Born	300	963	3,144	2,526	1,903	890	179	9,905
Third Born	33	242	1,642	1,512	1,224	729	128	5,510
Fourth Born	2	44	608	704	616	397	115	2,486
Fifth Plus	0	8	294	521	642	454	186	2,105
All Birth Orders	2,732	3,842	9,828	8,376	6,249	3,202	740	34,969
Non-Hispanic Black								
First Born	1,078	768	903	414	249	113	17	3,542
Second Born	186	425	929	480	276	138	41	2,475
Third Born	21	133	632	412	250	146	26	1,620
Fourth Born	1	31	325	279	179	96	23	934
Fifth Plus	0	6	210	313	373	196	69	1,158
All Birth Orders	1,286	1,363	2,990	1,898	1,327	69	176	9,729
Non-Hispanic White								
First Born	1,319	1,817	3,237	2,699	1,615	619	115	11,421
Second Born	114	538	2,215	2,046	1,627	752	138	7,430
Third Born	12	109	1,010	1,100	974	583	102	3,890
Fourth Born	1	13	283	425	437	301	92	1,552
Fifth Plus	0	2	93	208	269	258	117	947
All Birth Orders	1,446	2,479	6,838	6,478	4,922	2,513	564	25,240

Figures 1, 2 and 3 illustrate in three-dimensional form the interaction and compounding effects of maternal age and birth order on preterm births that are presented in tabular form in Table 2. The highest preterm rate was observed when low maternal age and higher birth orders coincide in a pregnancy and, to a lesser degree, when high maternal age coincides with the extremes of birth order.

The relationship of birth order with preterm births is not constant across maternal age and differs by maternal race. Regardless of race, for women under age 20 the preterm rate increases with each succeeding order of birth. This increase in preterm birth rate with increasing birth order was also observed for NH-Black women ages 20-24 and 40 and over. For ages 25-39 for all and NH-Black, the lowest preterm rates were observed for second order births. For NH-White women the lowest preterm rates were observed for second order births

for ages 20-29, and second and third order births for ages 30-34, with third order births for ages 35 and over having the lowest preterm rate.

The lowest preterm rate of 6.3 percent was observed for second order births for women ages 30-34. The corresponding lowest preterm rate of 12.0 percent for NH-Black women was for second order births for women 25-29. The lowest preterm rate of 5.8 percent for NH-white women was observed for second order births for ages 25-34, and for third order births for women ages 30-34.

There are other factors, which relate to the reason for differences in preterm rates by age and the incidence of these factors varies by age and race. Some of these factors (e.g. medical risk, education, marital status, spacing between births, smoking) and their relationship with preterm births will be reviewed in a future focus article.

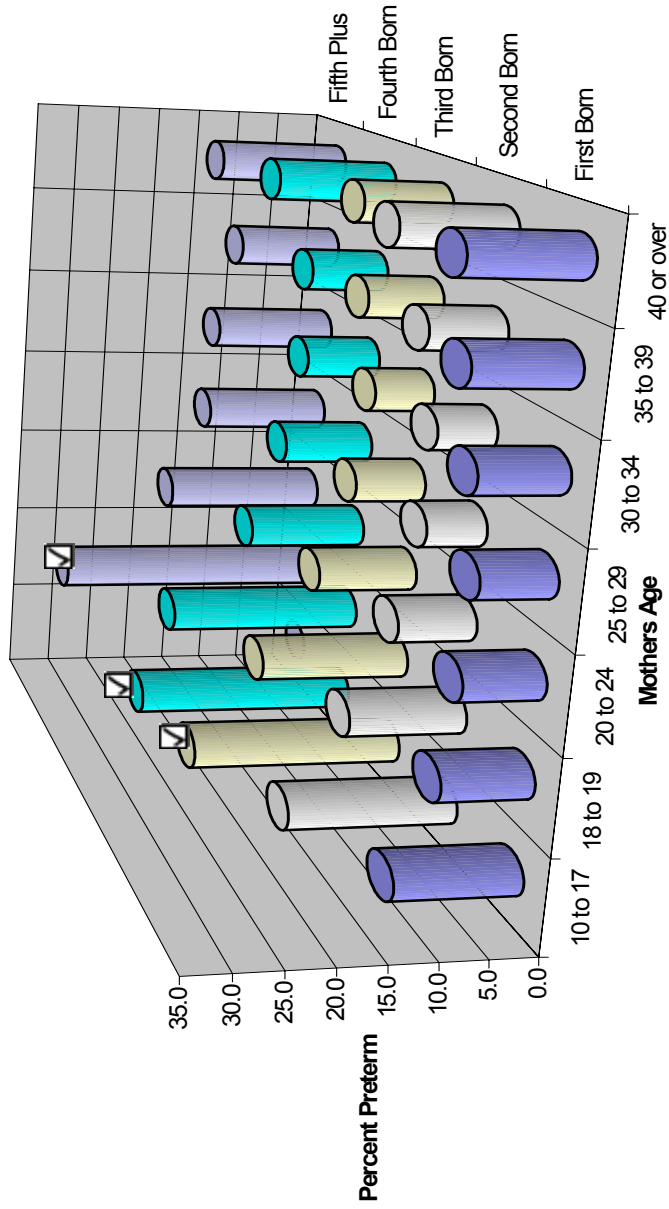
Table 2: Percent Preterm by Mothers Race by Birth Order by Age of Mother:  
1995-2000 Missouri Resident Singleton Live Births Born in Missouri Non-Military Hospitals

Birth Order	10 to 17	18 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 or over	All Ages	Total Preterm
<b>Both Race groups</b>									
First Born	13.2	9.5	8.4	7.8	9.1	10.8	12.3	9.2	14,963
Second Born	18.2	12.6	8.4	6.4	6.3	8.2	12.2	7.7	9,905
Third Born	23.4	16.5	11.0	7.8	6.6	8.3	9.7	8.5	5,510
Fourth Born	25.0 *	21.9	13.4	10.2	8.5	8.8	13.4	10.2	2,486
Fifth Plus	NE	30.8 *	18.4	14.4	14.0	11.9	15.0	14.1	2,105
All Birth Orders	13.7	10.5	9.1	7.7	7.7	9.2	12.4	8.8	34,969
Total Preterm	2,732	3,842	9,828	8,376	6,249	3,202	740		
<b>Non-Hispanic Black</b>									
First Born	18.3	13.6	12.4	14.0	16.0	18.9	15.3 *	14.8	3,542
Second Born	21.9	17.3	13.2	12.0	12.2	15.2	24.7	14.0	2,475
Third Born	24.4	19.1	15.1	13.5	14.3	19.4	18.6	15.2	1,620
Fourth Born	16.7 *	24.0	17.0	16.1	18.2	19.7	21.9	17.4	93
Fifth Plus	NE	27.3 *	20.0	18.4	24.9	23.0	31.1	21.8	1,158
All Birth Orders	18.8	15.2	14.0	14.1	16.5	19.1	23.7	15.4	9,729
Total Preterm	1,286	1,363	2,990	1,898	1,327	69	176		
<b>Non-Hispanic White</b>									
First Born	10.7	8.8	7.7	7.3	8.5	10.0	11.9	8.2	11,421
Second Born	14.2	10.4	7.3	5.8	5.8	7.6	10.6	6.7	7,430
Third Born	21.8 *	14.2	9.3	6.7	5.8	7.3	8.7	7.2	3,890
Fourth Born	50.0 *	18.1 *	10.7	8.2	7.0	7.5	12.3	8.2	1,552
Fifth Plus	NE	50.0 *	15.7	10.9	8.7	8.7	11.4	9.9	947
All Birth Orders	11.0	9.0	7.9	6.8	6.7	8.1	10.8	7.6	
Total Preterm	1,446	2,479	6,838	6,478	4,922	2,513	564		25,240

\*Rate is unstable, less than 20 events in numerator.

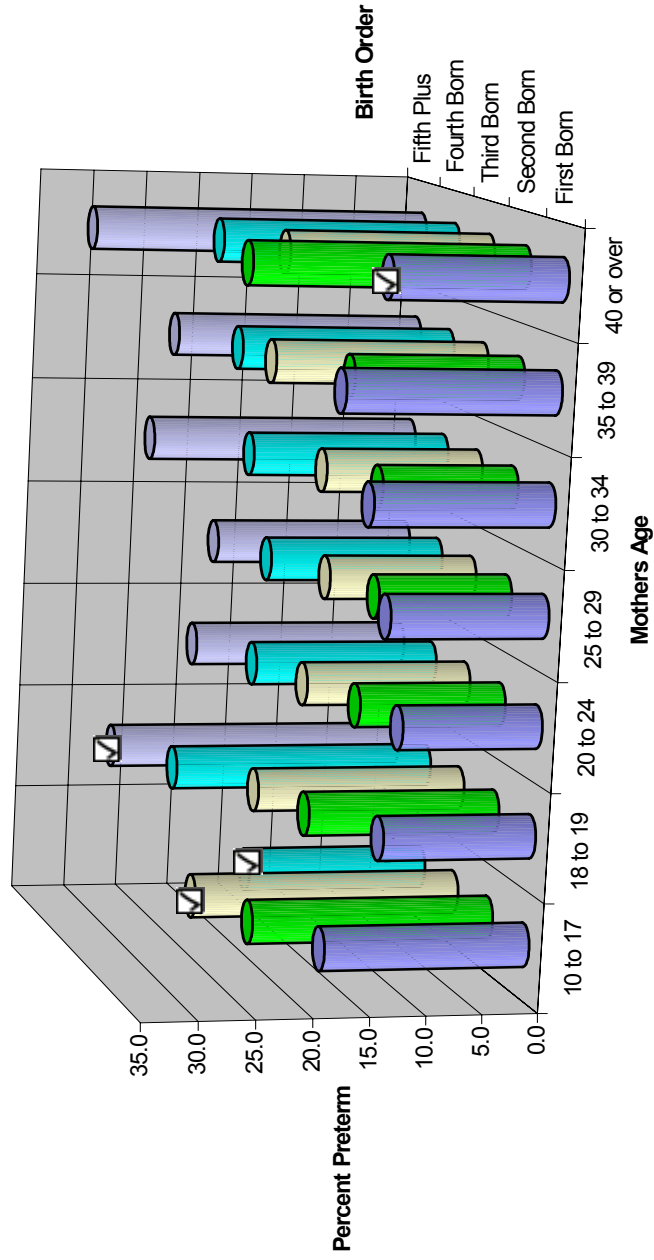
NE - no events in numerator.

**Figure 1. Percent Preterm by Mother's Age and Birth Order: 1995-2000 Missouri Resident Singleton Non-Military Hospital Live Births**



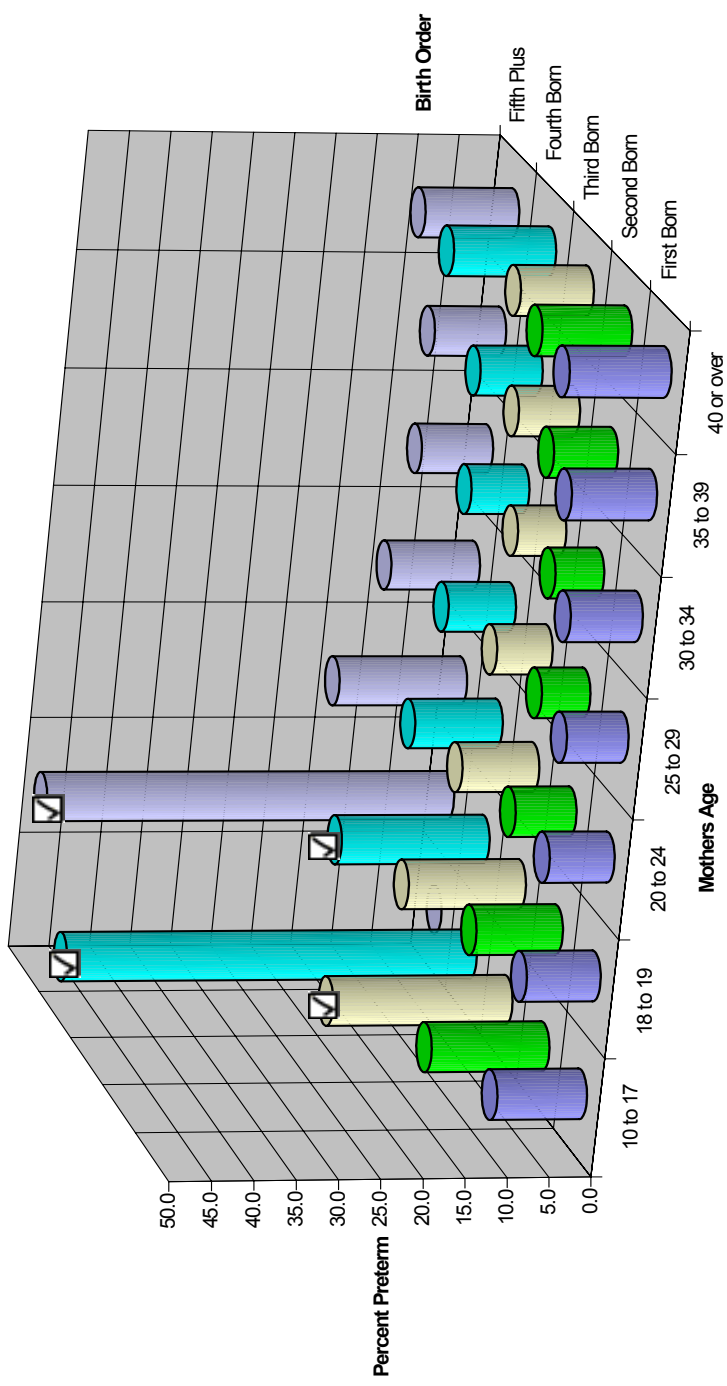
✓ Based on fewer than 20 events, therefore, rate is unstable.

**Figure 2. NH-Black Percent Preterm Births By Mothers Age and Birth Order: 1995-2000 Missouri Resident Singleton Non-Military Hospital Live Births**



✓ Based on fewer than 20 events, therefore, rate is unstable.

**Figure 3. NH-White Percent Preterm Births by Mothers Age and Birth Order:  
1995-2000 Missouri Resident Singleton Non-Military Hospital Live Births**



✓ Based on fewer than 20 events, therefore, rate is unstable.

## Provisional Vital Statistics for May 2002

**Live births** decreased in May as 6,189 Missouri babies were born compared with 6,422 in May 2001. Cumulative births for the 5- and 12- month periods ending with May also decreased. For the first five months of the year, births decreased by 6.2 percent from 32,284 to 30,274.

**Deaths** decreased in May as 4,799 Missourians died compared with 5,152 one year earlier. However, cumulative deaths for the 5- and 12- month periods ending with May both increased.

The **Natural increase** in May was 1,390 (6,189 births minus 4,799 deaths). The natural increase

for the 5- and 12- month periods both show rather large declines.

**Marriages** and **Dissolutions of marriage** both show decreases for all three time periods shown below. For the 12 months ending with May, the marriage to divorce ratio increased from 1.75 to 1.81.

**Infant deaths** increased slightly in May as 76 Missouri infants died compared with 72 in May 2001. For the 12 months ending with May, the infant death rate increased from 7.7 to 8.3 per 1,000 live births.

### PROVISIONAL VITAL STATISTICS FOR MAY 2002

Item	<u>May</u>				<u>Jan.-May. cumulative</u>				<u>12 months ending with May</u>				
	<u>Number</u>		<u>Rate*</u>		<u>Number</u>		<u>Rate*</u>		<u>Number</u>		<u>Rate*</u>		
	<u>2001</u>	<u>2002</u>	<u>2001</u>	<u>2002</u>	<u>2001</u>	<u>2002</u>	<u>2001</u>	<u>2002</u>	<u>2001</u>	<u>2002</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
<b>Live Births</b> .....	6,422	6,189	13.4	13.3	32,284	30,274	13.9	13.0	78,107	73,519	13.7	13.9	13.0
<b>Deaths</b> .....	5,152	4,799	10.8	10.3	25,029	25,861	10.7	11.1	54,858	55,159	9.9	9.8	9.8
<b>Natural increase</b> ....	1,270	1,390	2.7	3.0	7,255	4,413	3.1	1.9	23,249	18,360	3.8	4.1	3.3
<b>Marriages</b> .....	4,386	4,248	9.2	9.1	14,614	14,203	6.3	6.1	42,741	41,675	8.0	7.6	7.4
<b>Dissolutions</b> .....	2,135	2,130	4.5	4.6	10,007	9,474	4.3	4.1	24,486	23,025	4.5	4.4	4.1
<b>Infant deaths</b> .....	72	76	11.2	12.3	297	301	9.2	9.9	600	608	7.7	7.7	8.3
<b>Population base</b> ..... (in thousands)	...	...	5,630	5,665	...	...	5,630	5,665	...	...	5,567	5,610	5,645

\* Rates for live births, deaths, natural increase, marriages and dissolutions are computed on the number per 1000 estimated population. The infant death rate is based on the number of infant deaths per 1000 live births. Rates are adjusted to account for varying lengths of monthly reporting periods.

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